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FLORISTIC STUDIES IN IDUKKI DISTRICT, KERALA

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INTRODUCTION

Combining areas mostly from the former Kottayam and Ernakulam districts Idukki, the eleventh district of Kerala was formed on 26th January, 1972. Once a part of the erstwhile princely state of Travancore, the district derives its name from the location of the place 'Idukki' which in the local language (Malayalam) means a place of great constriction. The Periyar river here turns through on obtuse angle and cuts through narrow gorge about 10 m wide between massive exposed, rocky pinnacles. Mature has equipped this place for a huge reservoir with a relatively small wedge at this spot. Idukki hydro-electric project, the biggest of its kind planned in Kerala, is located here. The district has a wide range of habitats which provide ecological diversity. The forests are luxuriant with a store house of valuable timber and medicinal plants. The flora is significant from the scientific phytogeographic and utilitarian points of view.

GEOGRAPHIC LOCATION AND TOPOGRAPHY

Idukki district is situated in the Southern, Western Ghats between 9°15′ to 10°21′ N and 76°15′ to 77°25′ E. The district is bounded by Trichur and Coimbatore district in the North, Madurai, Ramanathapuram and Tirunelveli districts in the east. Quilon district in the south and Kottayam and Ernakulam district in the west. The district is mostly mountainous with an almost unbroken undulating mountain wall in the taluks of Devicolam, Udumpanshola and Peermede except a narrow width of plain terrain in Thodupuzha taluk. The altitudes range from 500 m to 2695 m highest elevation is in the Anaimudi (2,695 metres) which is the highest peak in South India, forming the nodal point of the Southern Ghats. There are other peaks which vary from 1,900 m to 2,600 m, the most prominent of them being Karinkulam, Devimalai, Eravimala and Vagavarrai. The Periyar, Manimala and the Meenachil are the important rivers while Periyar and Devicolam are the important lakes in the district.

GEOLOGY AND SOIL

The rock formation consists mainly of granites and gneisses. Laterite occurs at varying depths in the low country and valleys, overlying the rock system of gnessic origin. Soil is mainly composed of disintegrated laterite and gneiss. The disintegration of the rocks gives rise to various types of soil which are mainly loamy in character. On the high ridges, the soil is coarse mixed with a large amount of quartz grains but in the valleys, there is a fine textured loam (John, 1961). In the High Range the crystalline rock consists mainly of the minerals, silica, feldspars, muscovite and biotite with small amounts of the accessory ferromagnesian minerals. The soil is acidic and is made up of sandy clay loam. (*Koshy, 1970*).

CLIMATE

The district has a tropical humid climate. Variation in temperature is between 24°C to 38°C in the plains and 7°C to 32°C in the hills. Rainfall varies from 650 mm in some parts of the plains and places on the eastern side of the ghats like Chinnar, Mariyur to over

5,600 mm in the hills. Anaimudi and Petimudi receive the highest rainfall. The major part of the annual rainfall is received from the South-West monsoon during the months of June to August. The north-east retreating monsoon brings light showers during October and November.

FLORISTIC STUDIES PAST AND PRESENT

There has been no detailed study on the flora of this region. Beddome has made collection in Peermede and adjacent tracts of Anaimudi. Bourdillon (1892) has made a report on the forests of Travancore in general and later (1908) he has studied on the indigenous and timber yielding trees of Travancore. Rama Rao (1914) in his work occasionally refers to this area. Gamble (1915-36) refers to this district based on the collections made by Barnes, Beddome, Bourdillon, Meebold and Venkoba Rao. Barnes published an account on the Geraniaceae occuring in the High Range (1939). A number of new species have been described from the area by Barnes, Bor, Fischer and Summerhayes. Iyppu (1960) and Chandrasekaran (1962) have dealt with the forest types of this region. The Southern Circle of Botanical Survey of India has so far made about 21 major plant exploration tours in the District collecting a total of 3,426 field numbers. They have been critically studied, identified and incorporated in the Madras Herbarium. Twelve scientific papers have been published so far. Sebastine & Vivekananthan (1967), Shetty & Vivekananthan (1971) deal with the studies on the flora of Devicolam and Aaimudi ranges respectively. Vivekananthan (1978) has studied the vegetation of Periyar Wild Life Sanctuary with special reference to nature conservation. Shetty & Vivekananthan (1968, 1969, 1970, 1973, 1975) and Sharma, Vivekananthan & Rathakrishnan (1974) have described six novelties from this area. Vivekananthan (1968), Shetty & Vivekananthan (1972), and Shetty, Karthikeyan & Vivekananthan (1973) added information on the distribution and taxonomy of some rare and little known taxa. Nagendran *et al.* (1976-77) and Bhaskar & Razi (1978, 1978A) have made collections of Podostemaceae and Balsiminaceae respectively. Kostermans & Ridsdale (1977) have visited Peermede, Thekkadi and Devicolam. Besides, botanists like Jacob, Rathakrishnan, Rudloph Anstead and Subramanyam have also botanised in this district and their collections are also in the Madras Herbarium.

Southern Montane Wet Temperate Forests : This type of forest is met with the High Range where the altitude is more than 1,600 m. These forests are locally known as "Sholas" which are the remnants of the original climax formation of evergreen forests of Western Ghats. They are confined to the scattered folds and depressions. The tree species are represented mostly by members of the Myrtaceae, Icacinaceae, Lauraceae and Ternstroemiaceae. The ground flora consists of a large number of species belonging to Rubiaceae and the gregarious *Strobilanthes* along with great abundance of ferns and mosses. A few species on the shola fringes are of temperate origin.

Southern Montane Wet Grasslands : The sholas are interspersed with vast tracts of grasslands. They consists of large number of ligneous elements and herbs than grasses. In these grasslands quite a number of temperate elements also occur. In addition a large number of endemic plants are occurring here.

Southern Tropical Wet Evergreen Forests : The lofty, dense evergreen forests present a multi-storyed canopies. This type is met with from about 500 to over 1,500 m in places like Devicolam, Peermede, Udumbanshola, Sabarimalai, Mangala Devi, Kulamavu etc., with some variations in floristic composition as the altitude increases. It can be sub-divided as low level or high level or semi-evergreen forests. Most of the trees are characteristic of southern western ghats. Most of these types have been subjected to heavy biotic interference, and undisturbed forms are met with only as discontinuous patches.

Southern Sub-tropical Hill Forests : This type is found in the transitional zone between the montane wet temperate forests and tropical wet evergreen forests and occurs in the high range in places where the altitude vacancy between 1,500 to 1,700 m. The flora is a mixture of both, while there is a preponderance of tropical wet evergreen elements.

South Indian Moist Deciduous Forests : This type is found in the eastern side in places around Thekkadi where the altitude varies from 700-900 m. *Tectona grandis* Linn. f., *Anogeissus latifolia* (DC.) Wall. ex Guill. & Perr., *Dalbergia* spp. and *Terminalia* spp., are common in these forests.

Southern Tropical Dry Deciduous Forests : At the foot hills near Chinnar and Anjanad Valley on the eastern side bordering the dry plains of Tamil Nadu (which is on the leeward side of the ghats) deciduous thorny plants occur along with bamboos. At Mariyur, extensive patches of Sandal Wood forest are met with.

South Indian Sub-tropical Hill Savannah : Vast tracts of low level grassland dotted with *Phoenix humilis* occur in the hills upto an altitude of 1,400 m interspersed with evergreen forest. Idukki district under South Indian subtropical area has a large number of timber yielding, medicinal or otherwise commercially useful plants. Botanical studies show that it has rich Flora of nearly 1500 species of vascular plants and appears to be one of the important centres of speciation in South India.

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